

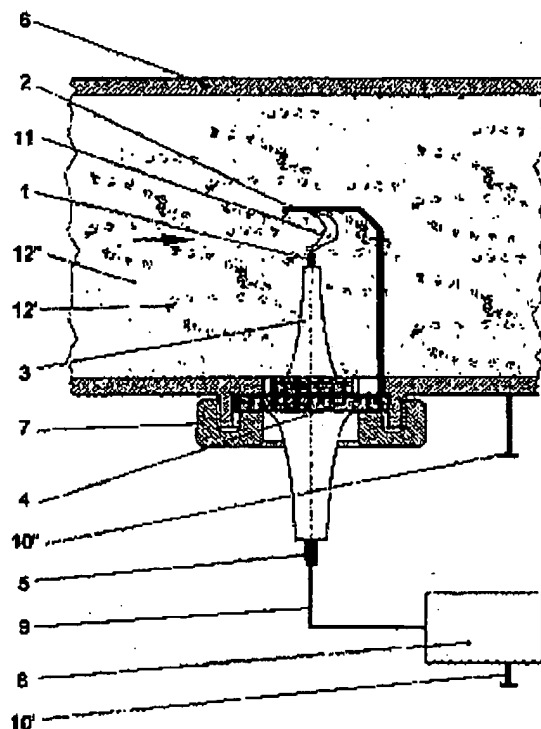
High voltage detection electrode for particles in gases

Patent number: DE19853841
Publication date: 1999-06-02
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Classification:
- International: G01M15/00; F01N3/00; G01N15/00; G01N27/62
- european: G01M15/10E; G01N15/06D; G01N27/70
Application number: DE19981053841 19981123
Priority number(s): DE19981053841 19981123

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Abstract of DE19853841

A spacing between a central high voltage electrode and an earth electrode, and that between the central electrode and other earthed objects, exceeds that of a normal sparking plug. In the case of a high speed gas flow, electrode positioning takes into account flow direction. This achieves precise measurement, and minimizes electrical energy requirements. The central electrode insulator can be heated to clean it, preventing short-circuiting to earth. Independent claims are included for: (i) the use of the electrode, in which, with no electrode heating, and in the presence of conductive particles, continuous sparking is induced by high voltage, to burn off any adherent particles, cleaning the detector, with voltage then reduced in steps, until sparking ceases, and the minimum sparking voltage taken as a measure of particle concentration; and (ii) application as a soot sensor in engine exhaust gases, where location close to the exhaust valves minimizes dead time in measuring soot concentration and the measurements can be carried out continuously during the short cycle time. In (i), alternatively, with a heated electrode, and particles of low or high conductivity w.r.t. the gas, the voltage is held constant. The ionization current is then taken as a measure of particle concentration. Where voltage is taken as a measure for particle concentration, this voltage is varied, to hold ionization current constant.



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